



# GLOBAL POLLUTION MONITOR



Pollution  
& Process  
Monitoring

## CONTINUOUS ON-LINE TOXICITY PROTECTION

## PRODUCT FINDER: THE ON-LINE AMTOX™ FAMILY

PRODUCT	DESCRIPTION	APPLICATION	SENSOR SELECTION
<b>RQM</b>	River Quality Monitor	River Monitoring & Municipal WTW Intake Protection on raw water feed.	Most sensitive grade of nitrifying bacteria (pure) to optimise detection limits to toxic chemicals.
<b>FEM</b>	Final Effluent Monitor	Discharge Consent Monitoring of final effluent toxicity.	Intermediate grade of nitrifying bacteria to provide good sensitivity and tolerance to varying toxicity.
<b>ITM</b>	Influent Toxicity Monitor	Influent monitoring at municipal & industrial treatment works for process protection.	Wild resistant grade of nitrifying bacteria culture with some built-in tolerance to toxic chemicals, but retaining sufficient sensitivity for process protection.

## AMTOX™ – ANALYSER SPECIFICATION SUMMARY

### GENERAL DESCRIPTION

Analyser to determine the toxicity of a sample using immobilised nitrifying bacteria.

### MEASUREMENT METHOD

Inlet versus outlet ammonia concentration across bio-reactor using NH<sub>3</sub> ISE (Gas sensing Ion Selective Electrode).

### SAMPLE PREPARATION & FILTRATION

Filtration to a nominal 20 micron with inlet ammonia adjustment where required.

- ★ Disposable micro-filter cartridge (DMF).
- ★ Paper band filtration (BAND).
- ★ In-line micro filter with automatic back purge cleaning (MICRO).

### TEMPERATURE CONTROL

Biomass and ISE probe maintained at constant temperature using thermostatic heating block.

### BIOLOGICAL CULTURE

Sensitivity of nitrifying bacteria determined by application.

### AUTOMATIC CALIBRATION

Bioreactor efficiency test to reference data and compensate component drift.

### AUTOMATIC CHEMICAL CLEANING

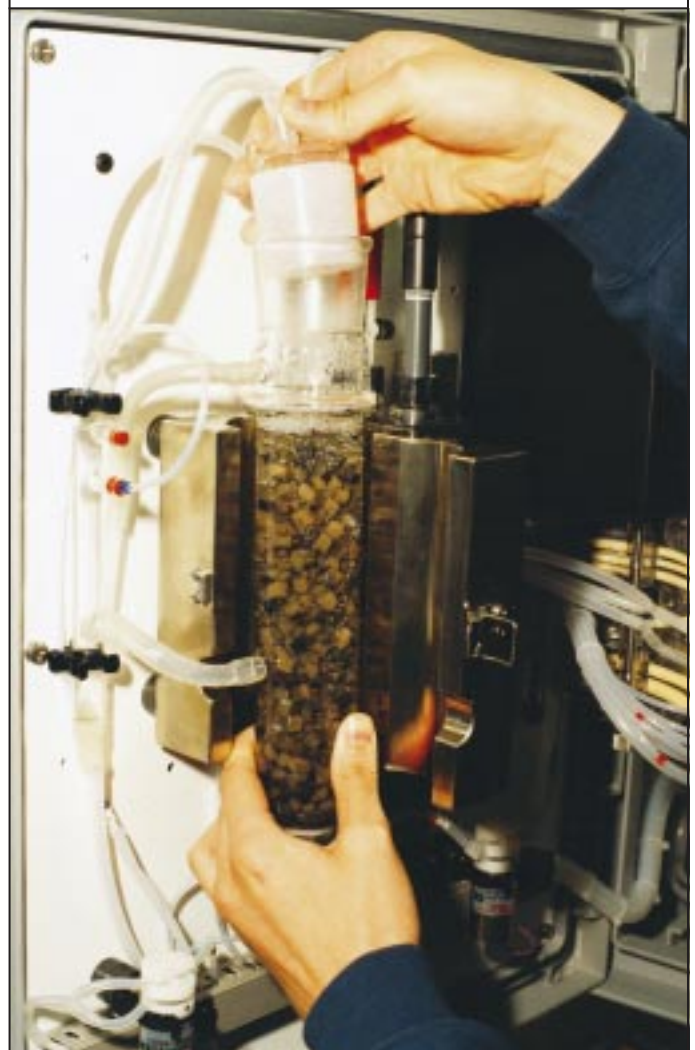
Selectable acid/alkalis analyser cleaning routine.

### DIMENSIONS

620(H) x 510(W) x 295(D) mm.

### POWER SUPPLY

115/230V 50/60Hz.



# AMTOX™ – CONTROLLER SPECIFICATION SUMMARY



## GENERAL DESCRIPTION

Bench top / wallmounted controller using Windows 95 touch screen, menu programming and local graphical display of 0-100% ammonia removal / toxicity.

## SIGNAL OUTPUTS

Analogue: 4-20mA (isolated) representing 0-100% toxicity.  
Relays: High alarm set point, High / high alarm, Diagnostic alarm.  
Serial: RS232 Interface (option only).  
Parallel: External printer connection  
Din 5 port: External keypad connection  
3.5" disk drive: Data archiving

## DIMENSIONS

245(H) X 415(W) X 295(D) mm.

## POWER SUPPLY

115 / 230 V 50 / 60 Hz.

## ELECTRICAL CONFORMITY/IP RATING

CE approved / IP54 protection.

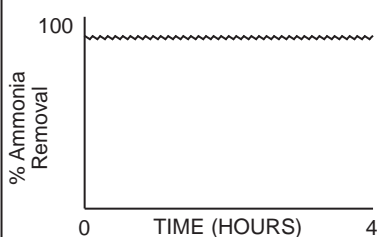
The Amtox™ range of process analysers incorporates revolutionary patented technology for the on-line measurement of toxicity to enable control of raw, treated and waste-water.

Filtered sample is continuously analysed for the presence of toxic pollutants and the degree of toxicity by closely monitoring the activity of a known population of nitrifying bacteria (immobilised in a porous PVA matrix). The percentage removal of ammoniacal-nitrogen is determined by inhibition caused by a diverse range of harmful contaminants (such as heavy metals, pesticides, herbicides, petrochemical substances and in-organic chemicals).

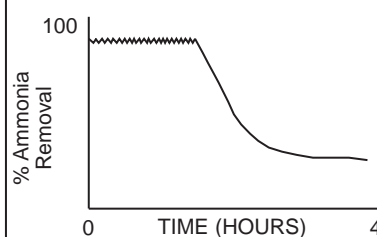
Analysers have been built to suit specific applications but are of the same generic technology. A laboratory version for discrete sample analysis is detailed separately. All systems have been designed to minimise maintenance and provide reliable, representative analysis. Response times are from 5 to 10 minutes for acute toxicity (short term loading). The analyser also identifies chronic toxicity occurring over 1-30 day period. The analyser provides both local graphical plots showing "realtime analysis" as well as providing a number of analogue and digital signals suitable for process control.

## TYPICAL PROCESS SIGNALS DISPLAYED ON AMTOX™ – & TELEMETRY

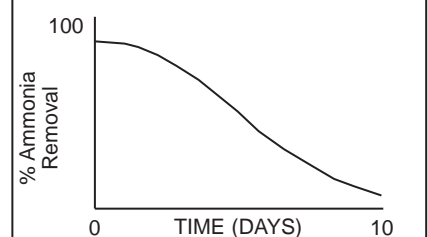
### TRACE FOR GOOD WATER QUALITY



### TRACE FOR ACUTE TOXICITY



### TRACE FOR CHRONIC TOXICITY



# THE AMTOX™ RANGE OF ON-LINE ANALYSERS

## INFLUENT TOXICITY MONITOR

The ITM system has been designed to provide continuous measurement at the inlet to treatment works, generally monitoring crude sewage. The system polices and protects the treatment plant to prevent both chronic and acute toxicity from impairing treatment. When used for control, incoming wastewater may be redirected to stormwater holding tanks for remedial treatment or dilution. Automatic sample collection may also be triggered and used to facilitate subsequent laboratory analysis. The pollutant(s) may therefore be identified to determine the source of the contamination. The analyser may also be used to identify when to manually spot sample. The success of Amtox™ for this application is a function of its rapid response and its ability to monitor at the beginning of the process.

## FINAL EFFLUENT MONITOR

The FEM system has been designed as a compliance monitor to provide continuous measurement prior to discharge of treated effluent. The presence of toxic chemicals and the degree of contamination may be recorded. When used with determinants such as turbidity and TOC (Total Organic Carbon), toxicity reported by Amtox™ indicates the harmful nature of the final effluent discharge into receiving waters.

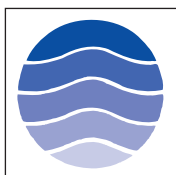
## RIVER QUALITY MONITOR

The RQM system provides global analysis of pollution and complements existing, contemporary analysers. The technology provides good sensitivity to a diverse range of toxic chemicals and has the distinct advantage of providing reliable alarming to pollution without interference by peripheral factors such as noise, light or behavioural disruption. Consequently, the technology is unique in encompassing an ecologically relevant measuring technique, using a large population size providing a high degree of sensitivity. The analyser may also be used to measure river water quality downstream of industrial treatment to indicate the quality/toxicity of discharge.

## KEY FEATURES

- Continuous on-line or discrete toxicity measurement.
- Rapid response permitting evasive action.
- Acute and chronic toxicity determination.
- Ecologically relevant technique.
- Sensitivity of nitrifying bacteria can be selected to suit application.
- Large biomass population provide good repeatability.
- Automated to minimise maintenance.
- Can be linked to telemetry systems.

In the interest of product development, PPM reserves the right to change instrument specification without prior notice.



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& Process  
Monitoring**

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